**CMSC 113: Computer Science I**

**Exam #2 Review**

1. Write a program that finds the least number with exactly 20 divisors. For the purposes of this problem, 1 counts as a divisor, but the number itself does not. For example, 10 has 3 divisors: 1, 2, and 5. The number 12 has 5 divisors: 1, 2, 3, 4, and 6. When the program is done running, it should print out the number it finds.
2. Write a program that asks the user for a string and prints it out in reverse, character by character.
3. Write out what the following programs print.
4. public static void main(String[] args)

{

int i;

for(i = 2; i < 15; i += i - 1)

{

System.out.println(i);

}

System.out.println(i);

}

1. public static void main(String[] args)

{

int j = 0;

for(int i = 10; j < i; i--)

{

j++;

System.out.println(2 \* i + j);

}

}

1. public static void main(String[] args)

{

for(int num = 384950; num > 0; num /= 10)

{

System.out.println(num % 10);

}

}

1. public static void main(String[] args)

{

int a = 14;

int b = 1;

while(b < 10)

{

System.out.println(a + ", " + b);

int c = a % 7;

b += c;

a -= b;

System.out.println(c);

}

System.out.println(a + ", " + b);

}

1. public static void main(String[] args)

{

int[] nums = new int[4];

nums[0] = 13;

nums[1] = 12;

nums[2] = 15;

nums[3] = 7;

for(int i = 0; i < nums.length; i++)

{

int a = 0;

while(nums[i] > 0)

{

if(nums[i] % 2 <= 0)

{

a++;

}

nums[i] /= 3;

System.out.println(i + ": " + nums[i]);

}

System.out.println(a);

}

}

1. public static void main(String[] args)

{

String str = "existential";

System.out.println(str.length());

for(int i = 0, j = str.length(); i <= j; i++, j--)

{

System.out.println(str.substring(i, j) + ".");

}

}

1. public class MutableInteger

{

private int value;

public MutableInteger(int startingVal)

{

value = startingVal;

}

public int getValue()

{

return value;

}

public void setValue(int newValue)

{

value = newValue;

}

@Override

public String toString()

{

return "" + value;

}

}

public class Main

{

public static void main(String[] args)

{

MutableInteger a = new MutableInteger(5);

MutableInteger b = a;

MutableInteger c = new MutableInteger(5);

System.out.println(a + ", " + b + ", " + c);

a.setValue(6);

System.out.println(a + ", " + b + ", " + c);

b.setValue(7);

System.out.println(a + ", " + b + ", " + c);

c.setValue(8);

System.out.println(a + ", " + b + ", " + c);

}

}